

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

## FACT SHEET

(pursuant to NAC 445A.236)

**Applicant:** Metallic Ventures (U.S.), Inc.  
5450 Riggins Court, Suite 2  
Reno, Nevada 89502

**Permit:** NV0023345

**Location:** Esmeralda Project  
2800 Lucky Boy Pass Road  
Hawthorne, Mineral County, Nevada 89415  
Latitude: 38° 18' 10" N; Longitude 118° 53' 38" W  
Township 5 N, Range 28 E, Section 7 MDB&M

**General:** The Applicant has applied for a National Pollutant Discharge Elimination System (NPDES) permit to discharge a maximum of 4.32 million gallons per day (MGD), daily maximum, of treated groundwater, pit lake water, and mine decline sump water to Days Creek, an ephemeral stream, which is a tributary to Bodie Creek. From Bodie Creek, surface water flows into Rough Creek and then to the East Walker River. The Applicant is authorized to discharge a daily maximum of 1.152 MGD of mine dewatering water under Temporary Authorization to Discharge TNEV2004327. The facility will require continued dewatering to develop the mines and to continue gold production, as well as to provide safe working conditions. It may be necessary to dewater the pit lake to fully develop the mines. Because the Applicant is proposing to discharge pit lake water and mine decline sump water, mine drainage under 40 CFR Part 440, this permit will be classified as a major NPDES permit.

The facility is located in Mineral County approximately 33 miles southwest of the town of Hawthorne, near the historic mining town of Aurora. The Aurora Mining District has been mined intermittently since the discovery of gold and silver in 1860. Mineral processing and the management of all mineral processing fluids at this site are permitted under Water Pollution Control Permit NEV87072 issued by the Bureau of Mining Reclamation and Regulation (BMRR).

The Esmeralda Project was previously known as the Aurora Project and operated by Nevada Goldfields, Inc. (NGI) and the Aurora Partnership (AP). NGI acquired the Humboldt Pit from AP in 1997 to compliment the NGI Prospectus, Martinez, Juniata, Chesco, Last Chance, and Ann Pits and the Prospectus, Chesco, and Martinez Declines. The Applicant purchased the property and mining facilities in March 2000 out of bankruptcy.

In May 1989, AP was authorized to discharge 0.08 MGD of Humboldt Pit dewatering water to the East Walker via the same route. Groundwater was first encountered in the pit at approximately 250 feet below ground surface. In 1992, NPDES Permit NV0021652 was modified to authorize an increase in the discharge rate to 0.55 MGD. The mine dewatering was discontinued in 1994 and a pit lake formed with a January 31, 2004 reported volume of approximately 60 million gallons. The pit lake elevation is estimated to increase by 0.3 feet for every million gallons of water discharged to the pit. The pit lake meets the drinking water standards for metals but has an elevated total dissolved solids concentration, 2004 average of 987 mg/L, due primarily to sulfate, 2004 average of 607 mg/L.

During recent development, groundwater has been infiltrating into two of the three declines at rates that exceed the processing make-up water requirements. Two dewatering wells, the Martinez and the Prospectus, have been constructed to intercept the flow to the declines; the Chesco decline is normally dry. The dewatering wells have decreased, but not eliminated, the flow to the sumps. Due to the mixing that occurs in the settling ponds, the quality of the individual sources of dewatering water was not required by the temporary permit and is not required by the proposed permit. Limited water quality data for the individual sources of dewatering water was provided in the application. This data is summarized in the Rationale for Permit Requirements section of this fact sheet. Details regarding the blended well/sump water quality are also provided in the Rationale for Permit Requirements section of this fact sheet.

Under temporary permit TNEV2003108, BMRR authorized the Applicant to construct two rapid infiltration basins (RIBs) to utilize the excess water. The RIBs did not perform as anticipated, requiring an alternative water disposal/beneficial use option. The two former RIBs are being used as settling ponds prior to discharge to Days Creek; a third settling pond will be constructed to provide retention capacity for increased discharge flow. The treatment system also includes polymer flocculent addition to the decline sump water for sediment removal and smaller settling basins near the mines. All water to be discharged to surface waters, the East Walker River via Days Creek, etc., must flow through the settling pond system.

The permit will give the Applicant the operational flexibility to discharge well and/or sump water that meets the appropriate Profile I criteria to the pit lake during maintenance or upset conditions. The amount of additional monitoring required by any discharge to the pit lake will discourage the routine use of this option.

On April 9, 2004, the Applicant submitted a Channel Stability Evaluation, prepared by SRK Consulting Engineers and Scientists to demonstrate that settling pond discharge flows up to 3,000 gallons per minute, 4.32 MGD, are within the capacity of the Bodie Creek tributary channels. The Evaluation concluded that, with minor channel improvements immediately downgradient of the settling pond, discharge flows up to 3,000 gpm are within the capacity of the ephemeral stream channel.

The Division has received letters of support for the discharge from the Walker Lake Working Group and the Board of Mineral County Commissioners. These groups are supporting the discharge because Walker Lake is in a critical condition and in much need of water to save it from becoming too alkaline for the survival of the native fish species, Lahontan cutthroat trout and Tui chub.

**Receiving Water Characteristics:** The East Walker River at Bridge B-1475, NAC 445A.1655, standards apply to this ephemeral East Walker tributary. The listed beneficial uses of this segment of the East Walker include propagation of aquatic life, water contact recreation, wildlife propagation, irrigation, stock watering, municipal or domestic supply, industrial supply, and non-contact recreation.

The Division monitors the East Fork of the Walker River water quality at sampling location EFE, latitude 38° 26' 0"N, longitude 119° 02' 2" W, near Bridge B-1475. Since 1996, the river pH has ranged from 8.18 Standard Units (SU) to 9.5 SU with an average pH of 8.85 SU. Over the same time period, the Division has obtained the following average East Walker River concentration data:

Parameter	Water Quality Standard	Average Concentration
Arsenic (µg/L)	50 <sup>1</sup>	6.2
Barium (µg/L)	2,000 <sup>1</sup>	89
Cadmium (µg/L)	1.9 <sup>2</sup> / 0.7 <sup>3</sup>	ND
Chloride (mg/L)	250 <sup>4</sup>	2.3

Chromium (µg/L)	100 <sup>1</sup>	3.3
Copper (µg/L)	9.6 <sup>2</sup> / 6.7 <sup>3</sup>	8
Hardness as CaCO <sub>3</sub> (mg/L)	---	62
Iron (µg/L)	1,000 <sup>5</sup>	294
Lead (µg/L)	22 <sup>2</sup> / 0.4 <sup>3</sup>	ND
Mercury (µg/L)	2.0 <sup>2</sup> / 0.012 <sup>3</sup>	ND
Nitrate as N (mg/L)	10 <sup>4</sup>	0.07
Selenium (µg/L)	20 <sup>2</sup> / 5.0 <sup>3</sup>	1.7
Sulfate, dissolved as SO <sub>4</sub> (mg/L)	250 <sup>4</sup>	20
Total Dissolved Solids (mg/L)	500 <sup>4</sup>	142
Total Nitrogen (mg/L)	0.9 <sup>6</sup> / 1.7 <sup>7</sup>	0.64
Total Phosphorus (mg/L)	---	0.09
Total Suspended Solids (mg/L)	80 <sup>4</sup>	9.5
Zinc (µg/L)	66 <sup>2</sup> / 60 <sup>3</sup>	16

Notes: For calculated water quality standards, a hardness of 62 mg/L as CaCO<sub>3</sub>, the 1996 – 2003 average hardness at this monitoring point, was used in the calculation of the standard.

The cadmium, copper, lead, and mercury average concentrations may not be representative of concentrations in the East Walker River. The detection limits for the majority of these analyses were above the aquatic life chronic toxicity standards.

1. NAC 445A.144 Municipal or domestic supply standard.
2. NAC 445A.144 Aquatic life, 1-hour standard.
3. NAC 445A.144 Aquatic life, 96-hour standard.
4. NAC 445A.1655 Water quality standard for beneficial use.
5. NAC 445A.144 Aquatic life standard.
6. NAC 445A.1655 Requirement to maintain existing higher quality, annual average.
7. NAC 445A.1655 Requirement to maintain existing higher quality, single value.

Temperature of the river water varies with season, being primarily dependent on ambient air temperature with a minimum temperature of 0°C and a maximum temperature of 23°C during sampling since 1996. This segment generally meets the appropriate water quality criteria except for frequent exceedances of the NAC 445A.1655 upper standard for pH, 9.0 SU, and the previously mentioned chronic toxicity standards for metals.

**Flow:** The draft permit includes a permit limitation of 4.32 MGD for the daily maximum discharge, the system design capacity. The maximum anticipated discharge without pit dewatering is 1.44 MGD.

Under the temporary permit, the Applicant's 30-day average discharge has ranged from 0.23 MGD to 0.76 MGD with an average discharge of 0.52 MGD.

**Quantities:** The 2002 303 (d) List for the Walker River Basin, stateline to Bridge B-1475, Waterbody ID NV09-WR-07, lists an existing Total Maximum Daily Load (TMDL) for Total Suspended Solids (TSS). As stated in Nevada's December 2002 Continuing Planning Process, there are instances where existing TMDLs may not result in load limits for a discharge. TMDLs were developed for the Walker River as part of the "208 Plan for Undesignated Areas" (NDEP, 1994), however no waste load allocations were made. Included in this 208 Plan is the following language:

"Any discharge which improves the existing water quality and has permitted discharge limits as strict or stricter than the water quality standards can be considered in compliance with an established TMDL."

The Applicant's discharge to the East Walker River will comply with this requirement and meet the 80 mg/L TSS standard. The TSS permitted load limitation, 2,882 lb/day, is based on the permitted flow, 4.32 MGD, and the TSS water quality standard for beneficial uses, 80 mg/L. At the time of 208 Plan

development, the East Fork above Yerington (Nordyke E. Station), downgradient of Bridge B-1475, TSS concentration was 107.51 mg/L.

The 2002 303 (d) List for NV09-WR-07 lists pH and total phosphorus as pollutants or stressors of concern. Therefore, the permit will require monthly pH meter readings of the discharge and quarterly calculation of the total phosphorus loading without a discharge limitation.

Calculation of the loadings of the other monitored parameters will not be required by the permit.

**Proposed Effluent Limitations:** During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge treated mine dewatering water to the East Walker River through Outfall 001, the Settling Pond Two discharge line.

- a. Effluent samples and/or measurements taken in compliance with the monitoring requirements specified below shall be taken at the following locations:
- i. The diffuser, Outfall 001, on the HDPE discharge line from Settling Pond Two;
  - ii. The Settling Pond Two discharge line flume;
  - iii. The Martinez dewatering well discharge line totalizer;
  - iv. The Prospectus dewatering well discharge line totalizer;
  - v. The Martinez decline sump discharge line totalizer;
  - vi. The Prospectus decline sump discharge line totalizer;
  - vii. The Chesco decline sump discharge line totalizer;
  - viii. The Humboldt Pit discharge line totalizer;
  - ix. The discharge line(s) from every source (5 maximum) of dewatered solution to the Humboldt Pit;
  - x. The Humboldt Pit Lake;
  - xi. The Humboldt Pit monitoring well, MW-5;
  - xii. The Days Creek sampling point upgradient of the confluence with Bodie Creek, DC-1; and
  - xiii. The Bodie Creek sampling point at the downgradient edge of the mixing zone, BC-1.
- b. The discharge shall be limited and monitored by the Permittee as specified below:

PARAMETERS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	<u>30-Day Average</u>	<u>Daily Maximum</u>	<u>Sample Locations</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow, total (MGD)	4.32	4.32	ii.	Daily	Discrete
Flow, total to Humboldt Pit (MGD)	---	1.44	iii., iv., v., vi., and/or vii.	Continuous	Totalizer(s)/ Calculation
Flow, Martinez dewatering well (MGD)	Monitor & Report		iii. <sup>1</sup>	Weekly <sup>1</sup>	Totalizers
Flow, Prospectus dewatering well (MGD)			iv. <sup>1</sup>		
Flow, Martinez decline (MGD)			v. <sup>1</sup>		
Flow, Prospectus decline (MGD)			vi. <sup>1</sup>		
Flow, Chesco decline (MGD)			vii. <sup>1</sup>		
Flow, Humboldt Pit (MGD)			viii.		
Cadmium, total <sup>2</sup> (•g/L)	(3)	(3)	i.	Monthly	Discrete

PARAMETERS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	30-Day Average	Daily Maximum	Sample Locations	Measurement Frequency	Sample Type
Copper, total <sup>2</sup> (•g/L)	(4)	(4)	i.	Monthly	Discrete
Lead, total <sup>2</sup> (µg/L)	(5)	(5)	i.	Monthly <sup>6</sup>	Discrete
Manganese, total <sup>2</sup> (µg/L)	---	200	i.	Monthly	Discrete
Nitrate – N (mg/L)	----	10.0	i.	Monthly	Discrete
pH (SU)	---	6.5 ≤ pH ≤ 9.0	i.	Monthly	Meter Reading
Selenium, total <sup>2</sup> (µg/L)	5.0	20	i.	Monthly <sup>6</sup>	Discrete
Silver, total <sup>2</sup> (µg/L)	---	(7)	i.	Monthly <sup>6</sup>	Discrete
Sulfate (mg/L)	---	250/500 <sup>8</sup>	i. xiii. <sup>18</sup>	Monthly	Discrete
Sulfide (µg/L)	---	2	i.	Monthly <sup>6</sup>	Discrete
Total Dissolved Solids (mg/L)	---	500/1,000 <sup>8</sup>	i. xiii. <sup>18</sup>	Monthly	Discrete
Total Petroleum Hydrocarbons, extractable (mg/L)	---	1.0	i.	Monthly	Discrete
Total Suspended Solids (mg/L)	---	80	i.	Monthly	Discrete
Total Suspended Solids (lb/day)	2,882	---	i.	Monthly	Calculation
Antimony, total <sup>2</sup> (µg/L)	---	146	i.	Quarterly	Discrete
Arsenic, total <sup>2</sup> (µg/L)	----	50 <sup>(9)</sup>	i.	Quarterly	Discrete
Dissolved Oxygen (mg/L)	Monitor and Report		i., xii.	Quarterly	Discrete
Fluoride (µg/L)	---	1,000	i.	Quarterly	Discrete
Hardness (mg/L as CaCO <sub>3</sub> )	Monitor and Report		i.	Quarterly	Discrete
Iron, total <sup>2</sup> (µg/L)	----	1,000	i.	Quarterly	Discrete
Mercury, dissolved (µg/L)	0.012	2.0	i.	Quarterly	Discrete
Molybdenum, total <sup>2</sup> (µg/L)	---	19	i.	Quarterly	Discrete
Temperature (°C)	Monitor & Report		i., xii.	Quarterly	Meter Reading
Total Ammonia –N (mg/L)	(10)	(10)	i.	Quarterly	Discrete
Total Phosphates –P (mg/L)	0.10 <sup>11</sup>	---	i.	Quarterly	Discrete
Total Phosphorus (lb/day)	Monitor and Report		i.	Quarterly	Calculation
Boron (µg/L)	---	750	i.	Annually	Discrete
Cyanide, total (µg/L)	22	5.2	i.	Annually <sup>12</sup>	Discrete
Nickel, total <sup>2</sup> (µg/L)	---	13.4	i.	Annually	Discrete
Thallium, total <sup>2</sup> (µg/L)	---	13	i.	Annually	Discrete
Zinc, total <sup>2</sup> (µg/L)	(13)	(13)	i.	Annually	Discrete
Whole Effluent Toxicity Test	Monitor and Report <sup>14</sup>		i.	Annually	Discrete
Profile I	See Attachment A		ix., x. <sup>15</sup>	Initially, weekly <sup>16</sup>	Discrete
			xi. <sup>17</sup>	Initially, monthly	
Surface Elevation (ft. amsl)	Monitor and Report		x.	Initially, weekly <sup>16</sup>	Measurement
Static Water Elevation (ft. amsl)	Monitor and Report		xi.	Initially, weekly <sup>16</sup>	Measurement

Footnotes:

<sup>1</sup>: Flows to the Humboldt Pit shall be monitored daily and reported separately from the flows to the settling ponds.

<sup>2</sup>: Analyze as Total Recoverable Metal per 40 CFR § 136.

3. Cadmium, total  
30-day Average: concentration ( $\mu\text{g/L}$ ) =  $\exp\{0.7852 \ln(H) - 3.490\}$   
Daily Maximum: concentration ( $\mu\text{g/L}$ ) =  $\exp\{1.128 \ln(H) - 3.828\}$
  4. Copper, total  
30-day Average: concentration ( $\mu\text{g/L}$ ) =  $\exp\{0.8545 \ln(H) - 1.465\}$   
Daily Maximum: concentration ( $\mu\text{g/L}$ ) =  $\exp\{0.9422 \ln(H) - 1.464\}$
  5. Lead, total  
30-day Average: concentration ( $\mu\text{g/L}$ ) =  $\exp\{1.273 \ln(H) - 4.705\}$   
Daily Maximum: concentration ( $\mu\text{g/L}$ ) =  $\exp\{1.273 \ln(H) - 1.460\}$
  6. The Permittee may request a reduction in the monitoring frequency from monthly to quarterly after twelve consecutive months in which the constituent is not detected with a method detection level of less than the 30-day average discharge limitation (daily maximum for sulfide).
  7. Silver, total  
Daily Maximum: concentration ( $\mu\text{g/L}$ ) =  $\exp\{1.72 \ln(H) - 6.52\}$
  8. The total dissolved solids and sulfate discharge limitations shall be 500 mg/L and 250 mg/L, respectively, until the Division approves a mixing zone study or similar documentation to justify an increase in the TDS and/or sulfate concentrations to 1,000 mg/L and/or 500 mg/L, respectively. See Schedule of Compliance Item I.A.21.d.
  9. In response to the US EPA's October 2001 decision to reduce the arsenic drinking water maximum contaminant level to 10  $\mu\text{g/L}$  and to require water systems to meet this standard by January 2006, the Division is reviewing NAC 445A.144, Standards for Toxic Materials Applicable to Designated Waters. If the State arsenic standard is revised during the term of this permit, the daily maximum discharge limitation will be modified accordingly as a minor modification.
  10. Total Ammonia (mg nitrogen/L)  
30-day Average: 
$$\left[ \frac{0.0577}{1 + 10^{7.688 - pH}} \right] + \left[ \frac{2.487}{1 + 10^{pH - 7.688}} \right] \times \text{MIN} [2.85, 1.45 \times 10^{0.028 \times (25 - T)}]$$
  
MIN: Means the lesser of the two values separated by the comma.  
T: Discharge temperature in degrees Celsius.  
Daily Maximum: 
$$\left[ \frac{0.275}{1 + 10^{7.204 - pH}} \right] + \left[ \frac{39.0}{1 + 10^{pH - 7.204}} \right]$$
  11. Annual average.
  12. Any detection of cyanide shall trigger a reporting requirement as delineated under Part II.A.4.b.
  13. Zinc, total  
30-day Average: concentration =  $\exp\{0.8473 \ln(H) + 0.7614\}$   
Daily Maximum: concentration =  $\exp\{0.8473 \ln(H) + 0.8604\}$
  14. See Part I.A.18.
  15. The Humboldt Pit Lake water shall be sampled at the Humboldt Pit haul road, HPL-1.
  16. The Humboldt Pit Lake and all discharges to the Humboldt Pit Lake shall be monitored prior to discharge and weekly during the period of discharge. The pit lake shall be monitored bi-weekly for two months after the discharge ceases.
  17. The Humboldt Pit monitoring well, MW-5, shall be monitored prior to discharge to the pit lake and monthly during the period of discharge and for six months after the discharge ceases.
  18. Sampling at BC-1 is not required until the TDS and/or sulfate mixing zone has been approved by the Division.
- MGD: Million gallons per day.                      lb/day: Pounds per day.  
mg/L: Milligrams per liter.                       $\mu\text{g/L}$ : Micrograms per liter.  
-N: As nitrogen.                                      SU: Standard units.  
-P: As phosphorus.                                   °C: Degrees Celsius.

**Schedule of Compliance:** The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make in approving the schedule of compliance.

- a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.
- b. Within thirty (30) days of the permit effective date, the Permittee shall submit to the Division a Nevada licensed Professional Engineer stamped Operations and Maintenance Manual.
- c. Within fifteen (15) days of the completion of Settling Pond Three construction, the Permittee shall submit to the Division as-built drawings of all three settling ponds and the delivery pipelines and pond volume calculations for the three settling ponds. The as-built drawings and calculations shall be stamped by a Nevada licensed Professional Engineer.
- d. At least one hundred fifty (150) days prior to the discharge of water from the Humboldt Pit Lake that does not comply with the NAC 445A.1655 total dissolved solids 500 mg/L standard and/or the 250 mg/L sulfate standard, the Permittee shall submit to the Division for review and approval a mixing zone study or similar documentation to justify the discharge of this water.

This schedule of compliance item will not apply, if the Permittee treats or blends the water to reduce the TDS concentration to 500 mg/L or less and the sulfate concentration to 250 mg/L or less.

**Rationale for Permit Requirements:** The Applicant is proposing to utilize a flocculation/settling treatment process with up to three settling ponds which will result in compliance with East Walker River water quality criteria at the diffuser downgradient of Settling Pond Two, Outfall 001, except for temperature, dissolved oxygen, and potentially total dissolved solids and sulfate. Due to the lack of flow in the ephemeral Days Creek and the approximately 15,000 feet of channel from the discharge point to the confluence with Bodie Creek, the Division will not require mixing zone calculations for temperature and dissolved oxygen at Bodie Creek. The slope along the ephemeral channel ranges from 2 – 5 percent and will result in an undetermined degree of stream aeration.

Because the state aquatic life standards, NAC 445A.144, are at least as stringent as the new source performance standards daily maximum effluent guidelines for the copper, lead, zinc, gold, silver, and molybdenum ores subcategories, 40 CFR Part 440.104, the state standards were used to establish the permit discharge limitations. This analysis was limited to the reported range of hardness in the East Walker River for the copper, zinc, lead, mercury, and cadmium; and pH standards. The NAC 445A.1655 total suspended solids (TSS) beneficial use standard, 80 mg/L, is less restrictive than the 40 CFR Part 440.104 daily maximum standard of 30 mg/L. The TSS discharge limitation rationale is stated below.

Days Creek, Bodie Creek, and Rough Creek are not class waters.

Flow, total: The total flow rate limitation, 4.32 MGD, is based on the maximum predicted dewatering rate including Humboldt Pit dewatering plus a factor of safety. The discharge will not approach this flow rate unless the Applicant decides to dewater the Humboldt Pit Lake.

The flow to the Humboldt Pit Lake is limited to the maximum mine dewatering flow, 1.44 MGD, without the pit lake dewatering component. The discharge to the pit lake will only occur when necessary for maintenance and when the discharge water cannot meet the surface water discharge quality limitations.

Cadmium, total: The total cadmium limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 cadmium standards are for the dissolved fraction, therefore, the 0.85 adjustment factor for acute and chronic toxicity respectively has been eliminated from the standard equations.

Based on limited data, the permit application indicated that, at drinking water standard concentrations, cadmium had not been detected in the Martinez Decline, the Martinez Well, the Prospectus Portal, the Prospectus Pit Well, and the Humboldt Pit Lake waters. The Chesco Decline was dry.

Due to fluctuating hardness values, the temporary permit cadmium standards have varied significantly. The dissolved cadmium concentration in the temporary permit discharge has ranged from  $< 1 \mu\text{g/L}$  to  $3 \mu\text{g/L}$  with all values below the calculated acute standards. The chronic standard was exceeded during the first month of temporary discharge. With uncertainty regarding the cadmium concentration in the discharge and the low chronic toxicity standard, monthly cadmium monitoring will be required by the permit.

Copper, total: The total copper limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 copper standards are for the dissolved fraction, therefore, the 0.85 adjustment factor has been eliminated from the standard equations.

Based on limited data, the permit application indicated that, at drinking water standard concentrations, copper had not been detected in the Prospectus Portal and the Prospectus Pit Well waters. Copper was not detected in the six most recent Martinez Decline water samples, in three of six Humboldt Pit Lake water samples, and in two of three Martinez Well water samples. The maximum copper concentration in the Pit Lake and Martinez Well were  $3 \mu\text{g/L}$  and  $8 \mu\text{g/L}$ , respectively. The Chesco Decline was dry.

Due to fluctuating hardness values, the temporary permit copper standards have varied significantly. The dissolved copper concentration in the temporary permit discharge ranged from  $< 1 \mu\text{g/L}$  to  $27 \mu\text{g/L}$  with all values below the calculated acute standard. Copper was detected above the 30-day average limitation but below the daily maximum, therefore, the permit will require monthly analysis of this constituent.

Lead, total: The total lead limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 lead standards are for the dissolved fraction, therefore, the 0.50 and 0.25 adjustment factors for acute and chronic toxicity respectively have been eliminated from the standard equations.

Based on limited data, the permit application indicated that, at drinking water standard concentrations, lead had not been detected in the Martinez Well, the Prospectus Portal, the Prospectus Pit Well, and the Humboldt Pit Lake waters. Lead was not detected in the six of the eight Martinez Decline water samples. The maximum reported lead concentration in the Martinez Decline was  $34 \mu\text{g/L}$ , in July 2003 prior to the resumption of mining. The Chesco Decline was dry.

Due to fluctuating hardness values, the temporary permit lead standards have varied significantly. The dissolved lead 30-day average standard has approached the detection limit. The dissolved lead concentration in the temporary permit discharge has ranged from  $< 1 \mu\text{g/L}$  to  $< 7 \mu\text{g/L}$  with all values below the calculated standards. With uncertainty regarding the lead concentration and the low chronic



toxicity standard, monthly lead monitoring will be required by the permit with a potential reduction in monitoring frequency, if lead is not present in the discharge.

Manganese, total: The total manganese limitation, 200 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Irrigation Standards.

Based on limited data, the permit application indicated that manganese was present in the Martinez Well, the Martinez Decline, the Prospectus Portal, the Prospectus Pit Well, and the Humboldt Pit Lake waters at average concentrations of 31 µg/L, 450 µg/L, 770 µg/L (single data point), 285 µg/L, and 86 µg/L, respectively. The Chesco Decline was dry.

During the term of the temporary permit, the maximum manganese concentration in the discharge, 230 µg/L, exceeded the permit limitation, as did the first month of discharge 30-day average, 210 µg/L. Since the first month of discharge, the Applicant has complied with the permit limitation. The permit will require monthly manganese analysis.

Nitrate as N: The nitrate limitation is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655. The daily maximum, 10 mg/L, is the nitrate single value limitation for municipal or domestic supply, the most restrictive beneficial use.

Based on limited data, the permit application indicated that nitrate was present in the Martinez Well, the Martinez Decline, and the Humboldt Pit Lake waters at average concentrations of 0.1 mg/L, 1.2 mg/L, and 1.0 mg/L, respectively. Nitrate was not detected in the Prospectus Portal and the Prospectus Pit Well waters. The Chesco Decline was dry.

Nitrate has not been detected above 2.0 mg/L during the term of the temporary permit. Because nitrate is a component of the explosives used by the Applicant and the decline sumps are a source of discharge water, monthly nitrate monitoring will be required by the permit.

pH: The pH limitation is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655. The pH range between 6.5 SU and 9.0 SU is based on the propagation of wildlife as the most restrictive beneficial use.

Based on limited data, the permit application indicated that the pH of the various water sources has been in the range of 7.4 SU to 8.3 SU, with only the Prospectus Pit Well consistently outside of that range, 6.8 SU to 7.2 SU. The Martinez Decline had one elevated pH reading of 9.2 SU. The Chesco Decline was dry.

During the term of the temporary permit, the pH of the discharge has ranged from 7.16 SU to 8.35 SU. The 2002 303 (d) List for NV09-WR-07 lists pH as a pollutant or stressor of concern. The permit will require monthly pH monitoring.

Selenium, total: The total selenium limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard, 20 µg/L, as the daily maximum and the 96-hour, chronic, standard, 5.0 µg/L, as the 30-day average.

Based on limited data, the permit application indicated that selenium was not detected at drinking water concentrations in any of the analyzed discharge water sources. The Chesco Decline was dry.

Selenium was not detected in the discharge under the temporary permit. Due to elevated detection limits, it is not possible to determine compliance with the selenium chronic toxicity standard. Monthly selenium

monitoring will be required by the permit with a potential reduction in monitoring frequency, if selenium is not present in the discharge.

Silver, total: The total silver limitation is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. The NAC 445A.144 silver standard is for the dissolved fraction, therefore, the 0.85 adjustment factor has been eliminated from the standard equation.

Based on limited data, the permit application indicated that, at drinking water standard concentrations, silver had not been detected in the Martinez Well, the Prospectus Portal, the Prospectus Pit Well, and the Pit Lake waters. Silver was not detected in the seven most recent Martinez Decline water samples. The Chesco Decline was dry.

Due to fluctuating hardness values, the temporary permit silver standard has varied significantly. Dissolved silver was not detected in the discharge under the temporary permit, but the detection limit frequently approached the discharge limitation. Therefore, the permit will require monthly silver monitoring with a potential reduction in monitoring frequency, if silver is not present in the discharge.

Sulfate: The sulfate limitation, 250 mg/L, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses with municipal or domestic supply as the most restrictive use. A 250 mg/L sulfate limitation is also included in the draft permit for the downgradient edge of the yet to be proposed mixing zone.

Based on limited data, the permit application indicated that the average sulfate concentration for the Martinez Decline, the Martinez Well, the Prospectus Portal, the Prospectus Pit Well and the Pit Lake waters were 59 mg/L, 31 mg/L, 301 mg/L (single value), 132 mg/L, and 607 mg/L, respectively. The Chesco Decline was dry.

The maximum sulfate concentration in the discharge, 128 mg/L, occurred early in the term of the temporary permit. The average sulfate concentration reported in the most recent discharge monitoring report was 83 mg/L. Due to the elevated sulfate concentration in the pit lake, 580 mg/L – 630 mg/L, the permit will require monthly sulfate analysis.

If it becomes necessary to dewater the Humboldt Pit Lake, the draft permit will allow the Applicant to conduct a Mixing Zone Study or similar study to justify the discharge of water with a maximum sulfate concentration of 500 mg/L. By restricting the sulfate concentration at the diffuser(s) to 500 mg/L, the applicant will be required to treat the Pit Lake water or to blend this water with other sources of dewatering water to meet the limitation. Due to the low seasonal flow in Bodie Creek, the discharge sulfate concentration must be limited to prevent an inordinately long mixing zone in Bodie Creek.

Sulfide: The undissociated hydrogen sulfide limitation, 2 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards.

The sulfide concentration in the unblended dewatering waters was not routinely monitored. The one sulfide analysis resulted in a non-detect from a Martinez Well sample.

Sulfide was not correctly monitored during the first months of the temporary permit. With two data points, 0.2 mg/L and < 0.1 mg/L, from the temporary permit monitoring and elevated detection limits, < 0.1 mg/L, the permit will require monthly sulfide monitoring with a potential reduction in monitoring frequency, if sulfide is not present in the discharge.

**Temperature:** Although East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655 includes both seasonal, 13°C November through April, 17°C May through June, and 23°C July through October, and change in temperature standards, 2°C, these limitations were not included in the temporary permit.

Atmospheric conditions will affect the temperature of the water in the ephemeral channel and the settling ponds. The temperature of the settling pond discharge is expected to be greater than the temperature of naturally discharging groundwater in warm months and lower than the temperature of naturally discharging groundwater in the cooler months. The ponds are necessary to maximize total suspended solids reduction. The discharged water will flow approximately three miles in the ephemeral Days Creek channel prior to reaching Bodie Creek. The distance from this confluence to the confluence of Rough Creek and the East Walker is between nine and twelve miles. The discharge water temperature will be further influenced by atmospheric conditions during its flow to the East Walker. Any temperature exceedence will be further mitigated by the addition of water from other downstream sources and tributaries. The benefits of additional water in the river/tributary system will outweigh the potential negative effects of temperature standard exceedences.

During the term of the temporary permit, the NAC temperature standard was exceeded all but once and ranged from 7.5°C to 24.2°C. Due to the discharge to an ephemeral drainage, temperature was not limited in the temporary permit and will not be limited in the permit. Temperature is one of the variables in the total ammonia chronic toxicity standard equation and will be monitored at the same frequency, quarterly, as total ammonia.

Temperature monitoring will also be required in Days Creek upstream of its confluence with Bodie Creek.

**Total Dissolved Solids:** The total dissolved solids (TDS) limitation, 500 mg/L, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses, with municipal or domestic supply as the most restrictive beneficial use. Due to the ephemeral nature of this East Walker River tributary, the requirements to maintain existing higher quality were not evaluated. A 500 mg/L TDS limitation is also included in the draft permit for the downgradient edge of the yet to be proposed mixing zone.

Based on limited data, the permit application indicated that the average TDS concentration for the Martinez Decline, the Martinez Well, the Prospectus Portal, the Prospectus Pit Well and the Pit Lake waters were 209 mg/L, 147 mg/L, 696 mg/L (single value), 672 mg/L, and 987 mg/L, respectively. The Chesco Decline was dry.

The TDS concentration of the temporary permit discharge exceeded the permit limitation during the first month of discharge. Since the first month, the TDS concentration has ranged from 390 mg/L to 430 mg/L, below the temporary permit limitation. The permit will require monthly TDS analysis.

If it becomes necessary to dewater the Humboldt Pit Lake, the draft permit will allow the Applicant to conduct a Mixing Zone Study or similar study to justify the discharge of water with a maximum TDS concentration of 1,000 mg/L. By restricting the TDS concentration at the diffuser(s) to 1,000 mg/L, the applicant will be required to treat the Pit Lake water or to blend this water with other sources of dewatering water to meet the limitation. Due to the low seasonal flow in Bodie Creek, the discharge TDS concentration must be limited to prevent an inordinately long mixing zone in Bodie Creek.

**Total Petroleum Hydrocarbons:** The extractable TPH discharge limitation is based on the State TPH standard for remediation projects.

The TPH concentration in the unblended dewatering waters was not monitored.

TPH has not been detected during the term of the temporary permit. Because the Applicant is authorized to discharge from decline sumps, the permit will require monthly TPH analysis.

Total Suspended Solids: The TSS limitation, 80 mg/L, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses.

The TSS concentration in the unblended dewatering waters was not routinely monitored. The Martinez Well water was analyzed twice for TSS with results of non-detect and 9 mg/L.

Due to failure of the flocculent injection pump, the TSS standard was exceeded during the term of the temporary permit. This exceedence resulted in the issuance of a Warning Letter by the Division. The Applicant has taken appropriate actions, increased flocculent level and injection pump monitoring and replacement pumps and pump parts on-site, to reduce the probability of this type of exceedence reoccurring and has modified the permit application to allow temporary discharge to the pit lake during upset conditions. Due to this problem, reduced detention time with increased flows, and an average April TSS concentration of 95 mg/L, the permit will require monthly TSS analysis.

Although the most recent discharge monitoring reports have demonstrated that the treatment process is capable of treating the discharge to TSS concentrations of less than 10 mg/L, the 40 CFR Part 440.104 daily maximum standard of 30 mg/L TSS has not been incorporated into the permit. Even with the low nutrient concentrations in the dewatering water, there are concerns about algal growth increasing the TSS concentrations in the discharge as the ponds age. The Division has determined that it will be preferable to allow the TSS concentration to increase to the NAC 445A.1655 standard, 80 mg/L, rather than to potentially increase the chemical inputs to the treatment system with algaecides, etc.

See Quantities section of the fact sheet for TSS loading limitation rationale.

Antimony, total: The total antimony limitation, 146 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standards.

Based on limited data, the permit application indicated that the average antimony concentration for the Martinez Decline, the Martinez Well, and the Pit Lake waters were 22 µg/L with one non-detect, 20 µg/L, and 3 µg/L with one non-detect, respectively. Antimony was not detected in the Prospectus Pit Well and the Prospectus Portal water analyses. The Chesco Decline was dry.

During the term of the temporary permit, the maximum antimony concentration in the discharge, 11 µg/L, was an order of magnitude below the permit limitation. The 30-day average of the most recent discharge monitoring report was 5.3 µg/L. The permit will require quarterly total antimony analysis.

Arsenic: The arsenic limitation, 50 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standard. If this standard is revised during the term of the permit, the permitted daily maximum discharge limitation will be modified accordingly, as a minor modification.

Based on limited data, the permit application indicated that the average arsenic concentration for the Martinez Decline, the Martinez Well, the Prospectus Pit Well, and the Pit Lake waters were 48 µg/L with three non-detects, 11 µg/L, 33 µg/L, and 3 µg/L with one non-detect, respectively. Arsenic was not detected in the one the Prospectus Portal water analysis. The Chesco Decline was dry.

The maximum arsenic concentration in the discharge, 40 µg/L, occurred early in the term of the temporary permit. The arsenic concentration reported in the three most recent discharge monitoring reports has stabilized at range of 21 µg/L to 24 µg/L. The permit will require quarterly arsenic analysis.

Dissolved Oxygen: The East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses, includes seasonal dissolved oxygen (DO) standards of  $\geq 6.0$  mg/L November through May and  $\geq 5.0$  mg/L June through October.

The DO concentration in the unblended dewatering waters was not monitored.

Due to the discharge to an ephemeral drainage, dissolved oxygen monitoring was not required by the temporary permit and only quarterly monitoring without a discharge limitation will be required by the permit at the diffuser and in Days Creek upstream of its confluence with Bodie Creek. Naturally occurring groundwater discharges do not meet the NAC 445A.1655 DO standards. Some degree of aeration will occur during the approximately three-mile flow in the ephemeral Days Creek channel. The slope in this channel ranges from 2 – 5%. Downstream monitoring will quantify the degree of aeration.

Fluoride: The fluoride limitation, 1,000 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Irrigation Standards.

Based on limited data, the permit application indicated that the average fluoride concentration for the Martinez Decline, the Martinez Well, the Prospectus Portal, the Prospectus Pit Well and the Pit Lake waters were 400 µg/L, 180 µg/L with one non-detect, 1,170 µg/L (single value), 430 µg/L, and 420 µg/L, respectively. The Chesco Decline was dry.

During the term of the temporary permit, the total fluoride concentration of the discharge has ranged from 220 µg/L to 700 µg/L with the most recent monthly average of 260 µg/L. Quarterly total fluoride monitoring will be required by the permit.

Hardness: Hardness is not limited in the NAC or by the permit, but is necessary to calculate the total ammonia and several of the total metals standards. Hardness must be determined at the same frequency as the most frequent analysis of these constituents.

The hardness in the unblended dewatering waters was not monitored.

During the term of the temporary permit, the hardness of the discharged water ranged from 2270 mg/L as CaCO<sub>3</sub> to 285 mg/L as CaCO<sub>3</sub>.

Iron, total: The total iron limitation, 1,000 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards.

Based on limited data, the permit application indicated that the average iron concentration for the Martinez Well, the Prospectus Portal, and the Pit Lake waters were 350 µg/L, 510 µg/L (single value), and 82 µg/L with two non-detects, respectively. Iron was not detected in six of the seven most recent Martinez Decline water analyses. Iron was not detected in the Prospectus Pit Well water. The Chesco Decline was dry.

During the term of the temporary permit, the discharge exceeded the permit limitation once at 1,700 µg/L. The total iron concentration in all other analyses was less than one-half the standard. The permit will require quarterly total iron analysis.

Mercury, dissolved: The dissolved mercury limitations, 2.0 µg/L and 0.012 µg/L, are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The 2.0 µg/L mercury standard also applies to municipal or domestic supply. The NAC 445A.144 mercury standards are for the dissolved fraction. Since the mercury standards do not contain conversion factors, the mercury permit limitations are for dissolved mercury, not total.

Based on limited data, the permit application indicated that, at drinking water standard concentrations, mercury had not been detected in the Martinez Well, the Prospectus Portal, Prospectus Pit Well, and the Pit Lake waters. Mercury was not detected in the six most recent Martinez Decline water analyses. The Chesco Decline was dry.

Although the analytical procedure utilized was not sensitive enough to detect mercury at the chronic toxicity concentration, mercury has not been detected in the discharge with a detection limit of 0.2 µg/L. The permit will require quarterly dissolved mercury analysis to determine compliance with the daily maximum limitation. The chronic toxicity aquatic life standard was established below commonly available laboratory reporting detection limits or practical quantitation limits. Analytical testing with reportable detection limits at or below the 0.012 µg/L chronic aquatic life standard is required annually to determine compliance with the dissolved mercury concentration in the 30-day average discharge limitation of the permit.

Molybdenum, total: The total molybdenum limitation, 19 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standards.

The molybdenum concentration in the unblended dewatering waters was not monitored.

The maximum detected molybdenum concentration was 18 µg/L in the second month of the temporary discharge. The 30-day average for the most recent discharge monitoring report was 12.5 µg/L. Quarterly molybdenum monitoring will be required by the permit.

Total Ammonia as N: The total ammonia as nitrogen limitation is based on the Water Quality Criteria for Total Ammonia, NAC 445A.118. The daily maximum is from Table 1: Acute Water Quality Criteria for Total Ammonia for Freshwater Aquatic Life, Cold-Water Fisheries; the 30-day average is from Table 2: Chronic Water Quality Criteria for Total Ammonia for Waters Where Freshwater Fish in Early Life Stages May Be Present.

The total ammonia as N concentration in the unblended dewatering waters was not monitored.

Based on the pH of the temporary discharge, the daily maximum standard has been 3.1 mg/L. Based on the temperature of the discharge, the 30-day average standard has been 1.70 mg/L. The maximum total ammonia concentration during the term of the temporary permit was 1.1 mg/L with all other concentrations less than 0.5 mg/L. The 30-day average total ammonia concentrations have ranged from 0.1 mg/L to 0.3 mg/L. Quarterly total ammonia monitoring will be required by the permit.

Total Phosphates as P: The total phosphates as phosphorus annual average limitation, 0.10 mg/L, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses, with propagation of aquatic life as the most restrictive beneficial use.

The total phosphates as P concentration in the unblended dewatering waters was not monitored.

During the term of the temporary permit, the total phosphates concentration has been reported as ranging from less than the 0.05 mg/L detection level to 0.03 mg/L with the most recent monthly average of 0.02

mg/L. The laboratory analysis sheets indicate that the discharge was analyzed for total phosphorus not total phosphates. Quarterly total phosphates monitoring will be required by the permit.

Total Phosphorus: See Quantities section of the fact sheet for the total phosphorus (TP) loading monitoring rationale.

The TP concentration in the unblended dewatering waters was not routinely monitored. TP was not detected in two analyses of the Martinez Decline water. TP was present at concentrations of 0.05 mg/L and 0.04 mg/L in the two analyses of the Martinez Well water.

Boron: The boron limitation, 750 µg/L, in the temporary permit is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Irrigation Standards.

Based on limited data, the permit application indicated that the average boron concentration for the Martinez Decline, the Martinez Well, the Prospectus Portal, the Prospectus Pit Well, and the Pit Lake waters were 260 µg/L with five of eight analyses resulting non-detects, 60 µg/L with two of three analyses resulting in non-detects, 350 µg/L (single value), 360 µg/L with one of three analyses resulting in non-detect, and 97 µg/L respectively. The Chesco Decline was dry.

During the term of the temporary permit, the total boron concentration has ranged from 100 µg/L to 530 µg/L with the most recent monthly average of 103 µg/L. Annual boron monitoring will be required by the permit.

Cyanide, total: The total cyanide limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. The daily maximum, 22 µg/L, is the 1-hour average, acute, limitation and the 30-day average, 5.2 µg/L, is the 96-hour, chronic, limitation.

Based on limited data, the permit application indicated that, at drinking water standard concentrations, total cyanide had not been detected in the Martinez Well water. WAD cyanide was not detected in the Martinez Decline, the Prospectus Portal, and the Prospectus Pit Well waters. Total cyanide was detected at a concentration of 10 µg/L during the only cyanide analysis of the Humboldt Pit Lake water. The Chesco Decline was dry.

Total cyanide has not been detected in the temporary permit discharge, therefore, cyanide will be monitored annually.

Nickel, total: The total nickel limitation, 13.4 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standards.

Based on limited data, the permit application indicated that the average nickel concentration for the Martinez Well, the Prospectus Portal, and the Pit Lake waters were 3 µg/L with one non-detect, 34 µg/L (single value), and 12 µg/L, respectively. Nickel was not detected in the Prospectus Pit Well water and was not detected in the seven most recent Martinez Decline water analyses. The Chesco Decline was dry.

The temporary permit included the NAC 445A.144 Aquatic Life Standards equations. These equations resulted in higher discharge limitations than the drinking water standards and will not be used in the permit.

The maximum detected nickel concentration was 4 µg/L in the most recent DMR, therefore, annual nickel monitoring will be required by the permit.

**Zinc, total:** The zinc limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 zinc standards are for the dissolved fraction, therefore, the 0.85 adjustment factor for acute and chronic toxicity has been eliminated from the standard equations.

Based on limited data, the permit application indicated that the average zinc concentration for the Martinez Decline, the Martinez Well, the Prospectus Pit Well, and the Pit Lake waters were 106 µg/L with three non-detects, 25 µg/L with one non-detect, 275 µg/L with one non-detect, and 28 µg/L, respectively. Zinc was not detected in the Prospectus Portal water. The Chesco Decline was dry.

Due to fluctuating hardness values, the temporary permit zinc standards have varied significantly. For all analyses, the dissolved zinc concentration has been less than one-half the chronic toxicity standard. The permit will require annual zinc monitoring.

**Barium:** The barium limitation, 2,000 µg/L, of the temporary permit is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standard.

Based on limited data, the permit application indicated that the average barium concentration for the Martinez Decline, the Martinez Well, the Prospectus Pit Well, and the Pit Lake waters were 747 µg/L, 35 µg/L, 33 µg/L, and 36 µg/L, respectively. Barium was not detected in the Prospectus Portal water. The Chesco Decline was dry.

The maximum barium concentration in the discharge, 330 µg/L, occurred early in the term of the temporary permit. The barium concentration reported in the three most recent discharge monitoring reports has stabilized at a range of 30 µg/L to 39 µg/L. Due to the low concentration of barium in the discharge and there is no known or anticipated source at the facility, barium monitoring will not be required by the permit.

**Chloride:** The chloride limitation, 250 mg/L, of the temporary permit is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses with municipal or domestic supply as the most restrictive use.

Based on limited data, the permit application indicated that the average chloride concentration for the Martinez Decline, the Martinez Well, the Prospectus Portal, the Prospectus Pit Well, and the Pit Lake waters were 8.1 mg/L, 5 mg/L, 4.6 mg/L (single value), 5.4 mg/L, and 11 mg/L, respectively. The Chesco Decline was dry.

During the term of the temporary permit, the maximum chloride concentration in the discharge water was 8.4 mg/L. Due to the consistently low chloride concentration in the discharge and there is no known or anticipated source at the facility, chloride monitoring will not be required by the permit.

**Chromium, total:** The total chromium limitation, 100 µg/L, of the temporary permit is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standard.

Based on limited data, the permit application indicated that chromium had not been detected in the Martinez Well, the Prospectus Pit Well, and the Humboldt Pit Lake waters. Chromium has not been detected in the seven most recent analyses of the Martinez Decline water. Chromium was present at a concentration of 13 µg/L in the only analysis of the Prospectus Portal water. The Chesco Decline was dry.

The maximum chromium concentration in the discharge, 2 µg/L, occurred in the most recent discharge



monitoring report available at the time this fact sheet was initially written. Total chromium has only been detected once in the discharge, therefore, chromium monitoring will not be required by the permit.

Nitrite as N: The East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses, includes a single value, 0.06 mg/L, nitrite standard.

The nitrite as nitrogen concentration in the unblended dewatering waters was not monitored.

Nitrite monitoring was not required by the temporary permit and will not be required by the permit.

Thallium, total: The total thallium limitation, 13 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standards.

Based on limited data, the permit application indicated that thallium had not been detected in the Martinez Well, the Prospectus Portal, the Prospectus Pit Well, and the Humboldt Pit Lake waters. Thallium has not been detected in the seven most recent analyses of the Martinez Decline water. The Chesco Decline was dry.

During the term of the temporary permit, thallium was not detected in the discharge at detection levels of 1.0 µg/L and 0.5 µg/L. Since there are no known sources of thallium at the site, the permit will not require thallium analysis.

Total Nitrogen as N: The East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, requirements to maintain existing higher quality, includes annual average, 0.8 mg/L, and single value, 1.4 mg/L, total nitrogen standards.

The total nitrogen as nitrogen concentration in the unblended dewatering waters was not monitored.

Due to the discharge to an ephemeral drainage, total nitrogen monitoring was not required by the temporary permit and will not be required by the permit.

Turbidity: The turbidity limitation, not more than 10 Nephelometric Turbidity Units (NTU) above natural conditions, of the temporary permit is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, with propagation of aquatic life as the most restrictive beneficial use.

The turbidity of the unblended dewatering waters was not routinely monitored. The average 2004 Pit Lake turbidity was 2.7 NTU.

Since the treated water is discharged to an ephemeral drainage and the closest flowing water is several miles downgradient, there is no meaningful way to determine compliance with 10 NTU above natural conditions, therefore, turbidity monitoring will not be required by the permit.

Whole Effluent Toxicity Test: Acute toxicity testing using a 96-hour juvenile *Pimephales promelas* percent survival test will be included in the permit to verify the cumulative effects of the discharge on aquatic life. WET testing is a standard condition for major NPDES permits.

WET testing was not conducted on the unblended dewatering waters and was not required by the temporary permit.

Humboldt Pit Lake and Humboldt Pit Monitoring Well, MW-5: The Humboldt Pit Lake and Humboldt Pit Monitoring Well monitoring requirements and Profile I limitations have been adapted from the monitoring requirements of temporary permit TNEV2003110 issued to the Applicant by BMRR. The Profile I list of analytes, Attachment A, is a combination of primary and secondary drinking water

standards that the Division requires for non-contact groundwater analyses. The isolated pit lake is not a tributary to the East Walker and is not a "water of the US."

Pit lake and well monitoring will only be required if the Applicant must discharge to the pit lake during system maintenance or to avoid non-compliance with the surface water discharge standards. Monitoring will continue for varying time periods after termination of discharge to the pit lake. This data will be used to determine the impact of any discharge on the pit lake. BMRR has primary authority within NDEP for the pit lake water quality and may authorize other discharges to the pit lake.

MW-2A Groundwater Monitoring: Because the water discharged to the settling ponds generally meets the appropriate NAC 445A.144 and NAC 445A.1655 surface water quality standards after adequate retention time and the low infiltration rate of the settling pond soils, the permit will not require the continued monitoring of the groundwater downgradient of the settling ponds.

Analyses that resulted in not detected were not factored into the average values used in the Rationale for Permit Requirements section of this fact sheet.

**Proposed Determination:** The Division has made the tentative determination to issue the proposed permit for a five (5) year period.

**Procedures for Public Comment:** Notice of the Division's intent to issue a permit authorizing the facility to discharge to surface waters and groundwaters of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Mineral County Independent News** and the **Reno Gazette-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. October 15, 2004, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State or interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and indicate the interest of the person filing the request and the reasons why a hearing is warranted. Public hearings granted by the Division shall be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.238.

Prepared by: Bruce Holmgren  
July 2004/September 2004

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## ATTACHMENT A

### **NEVADA PROFILE I** **ANALYTE LIST**

#### **METALS**

Aluminum	0.20 mg/L
Antimony	0.146 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Boron	---
Calcium	---
Chromium (total)	0.1 mg/L
Copper	1.3 mg/L
Iron	0.60 mg/L
Magnesium	150 mg/L
Manganese	0.10 mg/L
Nickel	0.013 mg/L
Potassium	---
Silver	0.1 mg/L
Sodium	---
Zinc	5.0 mg/L
Arsenic	0.05 mg/L
Cadmium	0.005 mg/L
Lead	0.050 mg/L
Selenium	0.05 mg/L
Thallium	0.013 mg/L
Mercury	0.002 mg/L

#### **INORGANIC COMPOUNDS/CHARACTERISTICS**

Alkalinity	---
Chloride	---
Cyanide, WAD	0.20 mg/L
Fluoride	4.0 mg/L
Nitrate (as N)	10 mg/L
Nitrite	---
Nitrate/Nitrite	10 mg/L
pH	6.5 – 8.5 SU
Sulfate	500 mg/L
Total Dissolved Solids	1,000 mg/L

*Note: With appropriate metal digestions and filtrations.*